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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,788

06/06/2005

Koichi Sato

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EXAMINER

MARTIN, LAURA E

ART UNIT

PAPER NUMBER

2853

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,788	Applicant(s) SATO ET AL.	
	Examiner LAURA E. MARTIN	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12 and 14-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/22/08 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 and 14-16 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomioka et al. (US 2003/0070581 A1) in view of Takizawa et al. (US 5990227 A).

Tomioka et al. disclose the following claim limitations:

As per claim 12: two liquid compositions each comprising a functional substance [0112]-[0113] and [0159]-[0160]; a liquid medium with a pH and a pKa of an organic acid or a salt of an organic acid of the first liquid composition being different from a pH and a pKa of an organic acid group or salt of an organic acid group of the second liquid

Art Unit: 2853

composition [0139] and [0191] wherein the first liquid composition is greater than the second liquid composition in pH [0154] and [0106] of the liquid compositions, the first liquid composition is greater than the second liquid composition in pKa of the organic acid group [0191] or the salt of the organic acid, the organic acid of the second liquid composition is a sulfonic acid [0139], and an increase in viscosity of the first liquid composition is caused by a decrease in pH of the first liquid composition on contact with the second liquid composition [0138].

As per claim 14: the difference between the pKa of the organic acid groups or the salts of the organic acid group of the first and second liquid compositions is 0.3 or more, and a difference between the pH of the first and second liquid compositions is 0.3 or more [0139] and [0191].

As per claim 15: the difference between the pKa of the organic acid groups or the salts of the organic acid groups contained is at least two (acrylic acid and sulfonic acid) [0191] and [0139].

As per claim 16: the pKa of the sulfonic acid is at least two (applicant discloses the pKa of sulfonic acid in the specification being 2).

As per claim 22: the pKa of the sulfonic acid of the second liquid is not higher than 0 [0145] (less than 5).

Tomioka et al. do not disclose the following claim limitations:

As per claim 12: an amphiphilic block copolymer and the organic acid being a group of the copolymer.

As per claim 18: the amphiphilic block copolymer has an alkenyl ether as a repeating monomer unit.

As per claim 20: the functional substance is a colorant.

As per claim 21: an apparatus for liquid application, comprising a liquid applying means for applying the liquid and a driving means for driving the liquid applying means.

Takizawa et al. disclose the following claim limitations:

As per claim 12: an amphiphilic block copolymer and the organic acid being a group of the copolymer (styrene-acrylic acid and methylvinylether-monoethyl maleate column 30, line 47 – column 31, line 10).

As per claim 18: the amphiphilic block copolymer has an alkenyl ether as a repeating monomer unit (methyl vinyl ether - column 30, line 47 – column 31, line 10).

As per claim 20: the functional substance is a colorant (column 30, line 47- column 31, line 10).

As per claim 21: an apparatus for liquid application, comprising a liquid applying means for applying the liquid (figure 1, element 65) and a driving means for driving the liquid applying means (figure 1, element 68).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the liquids taught by Tomioka et al. with the disclosure of Takizawa et al. in order to provide high quality image recording.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomioka et al. (US 2003/0070581 A1) and Takizawa et al. (US 5990227 A), and further in view of Nakazawa et al. (EP 1243624 A1).

Tomioka et al. as modified disclose the following the claim limitations:

As per claim 17: the method according to claim 12.

Tomioka et al. as modified do not disclose the following claim limitations:

As per claim 17: the organic acid groups are selected from benzoic acid groups, aliphatic dicarboxylic acid groups, aromatic dicarboxylic acid groups, halogen-substituted benzoic acid groups, and sulfonic acid groups.

Nakazawa et al. disclose the following claim limitations:

As per claim 17: the organic acid groups are selected from benzoic acid groups, aliphatic dicarboxylic acid groups, aromatic dicarboxylic acid groups, halogen-substituted benzoic acid groups, and sulfonic acid groups [0016]-[0017].

Nakazawa et al. also discloses the amphiphilic block copolymer has an alkenyl ether as a repeating monomer unit [0016]-[0017].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method taught by Tomioka et al. as modified with the disclosure of Nakazawa et al. to provide superior dispersion stability.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomioka et al. (US 2003/0070581 A1) and Takizawa et al. (US 5990227 A), and further in view of Mishina et al. (US 6511534 B1).

Tomioka et al. as modified disclose the following the claim limitations:

As per claim 19: the method according to claim 12 and an amphiphilic block copolymer (column 30, line 47—column 31, line 10).

Tomioka et al. as modified do not disclose the following claim limitations:

As per claim 19: the functional substance is enclosed by a polymer.

Mishina et al. disclose the following claim limitations:

As per claim 19: the functional substance is enclosed by a polymer (column 16, lines 35-43).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method taught by Tomioka et al. as modified with the disclosure of Mishina et al. in order to provide strong fixing properties on a plurality of print medium surfaces.

Response to Arguments

Applicant's arguments with respect to claims 12-22 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAURA E. MARTIN whose telephone number is (571)272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin

/L. E. M./
Examiner, Art Unit 2853

/Manish S. Shah/

Primary Examiner, Art Unit 2853